

REVIEW SET 10A

1 If $p = 5$, $q = -3$, and $r = 6$, evaluate:

a $\frac{r}{q}$

b $\frac{p - q}{p + q}$

c $\frac{\sqrt{p^2 - 16}}{r - q}$

d $\frac{p + 2q - 2r}{r^2 - p^2}$

2 Simplify:

a $\frac{(2t)^2}{6t}$

b $\frac{16a + 8b}{6a + 3b}$

c $\frac{x(x - 4)}{3(x - 4)}$

d $\frac{8}{4x + 8}$

3 Simplify:

a $\frac{2x + 6}{x^2 - 9}$

b $\frac{x^2 + 4x + 4}{x^2 + 2x}$

c $\frac{3x^2 - 6x}{3x^2 - 5x - 2}$

4 Simplify:

a $\frac{2a - 2b}{b - a}$

b $\frac{5x - 15}{3x - x^2}$

c $\frac{16 - x^2}{2x - 8}$

5 Simplify:

a $\frac{a}{b} \times \frac{b}{3}$

b $\frac{a}{b} \div \frac{b}{3}$

c $\frac{a}{b} + \frac{b}{3}$

d $\frac{a}{b} - \frac{b}{3}$

6 Simplify:

a $\frac{7x - 14}{x} \times \frac{3}{x - 2}$

b $\frac{t^2 - 3t}{6t + 6} \times \frac{t + 1}{4t - 12}$

7 Simplify:

a $\frac{9}{n} \div 6$

b $\frac{7}{3x - 6} \div \frac{x + 5}{x^2 - 2x}$

8 Write as a single fraction:

a $\frac{2x}{3} + \frac{x}{4}$

b $2 + \frac{x}{7}$

c $\frac{x}{4} - 1$

d $\frac{x}{2} + \frac{x}{4} - \frac{x}{3}$

9 Simplify:

a $\frac{x}{3} + \frac{x - 1}{4}$

b $\frac{x + 2}{3} - \frac{2 - x}{6}$

c $\frac{2x + 1}{5} - \frac{x - 1}{10}$

10 Simplify:

a $\frac{1}{x + 1} + \frac{2}{x - 2}$

b $\frac{5}{x - 1} - \frac{4}{x + 1}$

c $\frac{1}{x^2} + \frac{1}{x + 1}$

11 Solve for x : $\frac{6}{x} = \frac{5}{11 - x}$

12 **a** Write as a single fraction: **i** $a - \frac{9}{a}$ **ii** $1 - \frac{a}{3}$

b Hence simplify $\left(a - \frac{9}{a}\right) \div \left(1 - \frac{a}{3}\right)$.

c Evaluate $\left(a - \frac{9}{a}\right) \div \left(1 - \frac{a}{3}\right)$ for:

i $a = 1$

ii $a = 3$

iii $a = 5$

$$1 \quad \mathbf{a} \quad -2 \quad \mathbf{b} \quad 4 \quad \mathbf{c} \quad \frac{1}{3} \quad \mathbf{d} \quad -\frac{13}{11}$$

$$2 \quad \mathbf{a} \quad \frac{2t}{3} \quad \mathbf{b} \quad \frac{8}{3} \quad \mathbf{c} \quad \frac{x}{3} \quad \mathbf{d} \quad \frac{2}{x+2}$$

$$3 \quad \mathbf{a} \quad \frac{2}{x-3} \quad \mathbf{b} \quad \frac{x+2}{x} \quad \mathbf{c} \quad \frac{3x}{3x+1}$$

$$4 \quad \mathbf{a} \quad -2 \quad \mathbf{b} \quad -\frac{5}{x} \quad \mathbf{c} \quad -\frac{x+4}{2}$$

$$5 \quad \mathbf{a} \quad \frac{a}{3} \quad \mathbf{b} \quad \frac{3a}{b^2} \quad \mathbf{c} \quad \frac{3a+b^2}{3b} \quad \mathbf{d} \quad \frac{3a-b^2}{3b}$$

$$6 \quad \mathbf{a} \quad \frac{21}{x} \quad \mathbf{b} \quad \frac{t}{24} \quad 7 \quad \mathbf{a} \quad \frac{3}{2n} \quad \mathbf{b} \quad \frac{7x}{3(x+5)}$$

$$8 \quad \mathbf{a} \quad \frac{11x}{12} \quad \mathbf{b} \quad \frac{14+x}{7} \quad \mathbf{c} \quad \frac{x-4}{4} \quad \mathbf{d} \quad \frac{5x}{12}$$

$$9 \quad \mathbf{a} \quad \frac{7x-3}{12} \quad \mathbf{b} \quad \frac{3x+2}{6} \quad \mathbf{c} \quad \frac{3x+3}{10}$$

$$10 \quad \mathbf{a} \quad \frac{3x}{(x+1)(x-2)} \quad \mathbf{b} \quad \frac{x+9}{(x-1)(x+1)} \quad \mathbf{c} \quad \frac{x^2+x+1}{x^2(x+1)}$$

$$11 \quad x = 6$$

$$12 \quad \mathbf{a} \quad \mathbf{i} \quad \frac{a^2-9}{a} \quad \mathbf{ii} \quad \frac{3-a}{3} \quad \mathbf{b} \quad -\frac{3(a+3)}{a}$$

$$\mathbf{c} \quad \mathbf{i} \quad -12 \quad \mathbf{ii} \quad \text{undefined} \quad \mathbf{iii} \quad -\frac{24}{5}$$